REMARKS

Claims 1-32 are pending in this application. Applicant has amended the claims as indicated above to make the claims more consistent, correct some grammatical and other obvious errors, and to more particularly set forth the claimed subject matter.

Objection

The Office has objected to the disclosure of the present application because of the use of "mHz" could easily be confused with "MHz." Applicant respectfully traverses this rejection.

The specification repeatedly mentions that the invention is used for low frequency ranges. For example, paragraph 10 on page 5 describes that the invention is used for signals "from the mHz range up to and including about 7kHz" (emphasis added). As another example, paragraph 25 on page 7 describes that the invention is used for signals in "low-frequency ranges (mHz to low Hz range)." In many instances, it is clear that the invention is used primarily—but not exclusively—for neural signals that have such low frequencies. Several other places in the specification provide numerical signals falling within these ranges.

When viewing the entire specification, especially these exemplified portions, it is unlikely that the skilled artisan would have considered that the invention would have operated in the MHz range. Thus, it is unlikely that the skilled artisan would have confused "mHz" and "MHz" as argued by the Office.

For the above reasons, Applicant requests withdrawal of this objection.

Rejection – 35 U.S.C. § 112

The Office has rejected claims 15 and 18 under 35 U.S.C. § 112 as being indefinite for the reasons noted on page 2 of the Office Action. Applicant respectfully traverses this rejection.

The Office argues that it is not clear from claim 15 how the voltages in that claim are in control of the operation of the MOS transistor. The Office, however, has not made a proper rejection of indefiniteness because it need not be clear solely from claim 15 show these voltages control operation of the MOS transistor. Rather, the inquiry is whether the skilled artisan would have considered claim 15 definite in light of the specification and the other claims.

Nevertheless, solely in an effort to expedite prosecution of this application, Applicant has amended claim 15 as indicated above. Accordingly, Applicant requests withdrawal of this ground of rejection.

Rejection – 35 U.S.C. § 103

The Office has rejected claims 1-14, 16-17, and 19-32 under 35 U.S.C. § 103 as being unpatentable over Baumgartner et al. (U.S. Patent No. 5,206,602) in view of Mastrocola (U.S. Patent No. 5,812,024) for the reasons listed on pages 2-3 of the Office Action. Applicant respectfully traverses this rejection.

The independent claims currently contain one of the following limitations: first, a fully-integrated amplifier; second, an amplifier that rejects DC offsets ranging from about 1V to about 2V; or third, amplification of neural signals. The Office, however, has not shown how these limitations are taught or suggested by the cited prior art.

As to the first limitation, a "fully-integrated" amplifier is an amplifier in which all of the components of the amplifier, including capacitors and transistors, are manufactured on a single chip. *See Specification, ¶ 27.* By using a fully-integrated approach, the amplifiers of the present invention can be made smaller by not needing off-chip capacitors so commonly used in existing bioamplifiers. *See Specification, ¶ 08.*

The Office, however, has not substantiated that either of the cited prior art references teach an amplifier containing such a feature. The Office contends that Baumgartner et al. teach an amplifier that "is an integrated circuit (chip) 100" as shown in Figure 3. A careful analysis of this reference does not support the Office's contention. Figure 3 is a diagram of chip 100 (the circuitry within the dashed line box) and associated "external circuitry." *See column 6, lines 4-8.* Much of this external circuitry (outside the dashed line of chip 100) is needed for operation of the bioamplifier of Baumgartner et al. *See column 6, lines 14-35.* But this external circuitry is exactly that: external to the chip 100. Thus, the Office has not shown that Baumgartner et al. teach a fully-integrated amplifier. And the Office has not even argued that Mastrocola teaches such a limitation.

As to the second limitation, the Office has not substantiated that either of the cited prior art references teach an amplifier that rejects DC offsets ranging from about 1V to about 2V. Citing column 1, lines 65-66, the Office contends that Baumgartner et al. teach an amplifier that offsets DC voltages. The DC offset voltages described in this reference are on the order of 100 mV. Thus, the Office has not shown that Baumgartner et al. teach an amplifier that rejects DC offsets ranging from about 1V to about 2V. And the Office has not even argued that Mastrocola teaches such a limitation.

As to the third limitation, the Office has not substantiated that either of the cited prior art references teach an amplifier for amplifying neural signals. While the Office has not even argued that Baumgartner et al. teach an amplifier containing such a feature, it is unlikely that the Office could substantiate such an argument: the disclosure of Baumgartner et al. is replete with references to the fact that the amplifier is used for ECGs and for amplifying signals from ECGs. And the Office has not even argued that Mastrocola teaches an amplifier for amplifying neural signals.

Thus, the Office has not shown that either Baumgartner et al. or Mastrocola teach any of these limitations. And the Office has not argued why the skilled artisan would have considered such limitations obvious in light of the individual disclosures of these cited references. And since the Office has not shown that the cited references individually teach or suggest such claim limitations, the Office can not substantiate the combination of the cited references would suggest such claim limitations.

The Office recognizes that Baumgartner et al. do not disclose the use of pseudo resistors, but argues that Mastrocola discloses the use of pseudo resistors in differential amplifiers. The Office concludes that it would have been obvious to utilize such a pseudo resistor for the on chip resistors of Baumgartner et al. in order to facilitate easier integration.

Applicant respectfully disagrees with this rationale because the Office has not shown that the suggestion of easier integration was in the prior art or in the knowledge of the skilled artisan. Obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention "where there is some teaching, suggestion, or motivation to do so found either explicitly or implicitly in the references themselves or in the knowledge generally

available to one of ordinary skill in the art." *See M.P.E.P. § 4143.01.* The Office, however, has not even alleged that the suggestion of easier integration was in the prior art or in the knowledge of the skilled artisan.

Thus, the Office has not substantiated that the skilled artisan would have considered the rejected claims obvious in light of the proposed combination of Baumgartner et al. and Mastrocola. Accordingly, Applicant requests withdrawal of this rejection.

CONCLUSION

For the above reasons, Applicant respectfully requests the Office to withdraw these grounds of rejection and allow the pending claims.

If there is any fee due in connection with the filing of this Amendment, including a fee for any extension of time not accounted for above, please charge the fee to our Deposit Account No. 50-0843.

Respectfully Submitted,

By _____
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Date: July 30, 2003